

REMARKS

Claims 1, 2, 4 and 7-23 are currently pending in the application. Claims 11-18, 20, and 21 were withdrawn from consideration by the Examiner as being directed to a non-elected invention. No claims are amended, added, or canceled by this response. Reconsideration of the rejected claims in view of the following remarks is respectfully requested.

35 U.S.C. §103 Rejection

Claims 1, 2, 4, 7-10, 19, 22, and 23 are rejected under 35 U.S.C. §103(a) for being unpatentable over U.S. Pat. No. 5,098,762 (“Nakajima”) in view of U.S. Pat. No. 6,696,167 (“Sean”), U.S. Pat. No. 4,661,398 (“Ellis”), and either of U.S. Pat. No. 4,486,115 (“Rionda”) or European Pat. Appln. No. 0 481 941 (“EP 941”). This rejection is respectfully traversed.

It is well established that the examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness (see, e.g., MPEP §2142). To establish a *prima facie* case of obviousness, all claim limitations must be taught or suggested by the prior art. See, *In re Royka*, 490 F.2d 981, 985, 180 USPQ 580, 583 (CCPA 1974); see also, *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). If the prior art reference(s) do not teach or suggest all of the claim limitations, Office personnel must explain why the differences between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art (MPEP 2141).¹

¹ While the *KSR* court rejected a rigid application of the teaching, suggestion, or motivation (“TSM”) test in an obviousness inquiry, the [Supreme] Court acknowledged the importance of identifying “a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does” in an obviousness determination. *Takeda Chemical Industries, Ltd. v. Alphapharm Pty., Ltd.*, 492 F.3d 1350, 1356-1357 (Fed. Cir. 2007) (quoting *KSR International Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1731 (2007)).

The present invention relates to a building board for use as a ceiling or wall element.

Independent claim 1 recites, in pertinent part,

... a plurality of orientated strand boards (OSBs) which are disposed side by side and are bonded together in multiple layers ... at least one nail plate disposed between respectively two layers lying one on top of the other, and at least one plastic mat disposed between two layers lying one on top of the other.

Applicants respectfully submit that no proper combination of the applied references discloses or suggests the combination of features recited in the claimed invention. The Examiner asserts that Nakajima discloses a plurality of boards disposed side by side and bonded together to form multiple layers. The Examiner also contends that Sean teaches equivalence between wood and OSB boards, and that it would have been obvious to use OSB boards in Nakajima in view of Sean. Applicants respectfully disagree.

Nakajima discloses plywood composed of layers, each layer comprising a plurality of divided wood pieces 4. Nakajima repeatedly states that an object of the invention is to provide a smooth-surfaced plywood. For example, Nakajima states:

Preferably, the uppermost veneer layer comprises the plurality of divided wood pieces with the clearance formed between the divided wood pieces, and at least the uppermost layer has a filler filled in the clearance formed between the divided wood pieces thereof. The plywood can then be made smooth-surfaced.
The smooth-surfaced plywood is very convenient for some uses.

(Nakajima, col. 1, lines 47-55) [emphasis added].

...

According to another preferred embodiment, at least the uppermost of the uppermost veneer layer and the lowermost veneer layer is an undivided layer, and the layer next to the undivided layer comprises the plurality of divided wood pieces with the clearance formed between the divided wood pieces, at least the next layer having a filler filled in the clearance. The undivided layer can then be adhered to the next layer with ease effectively and given a smooth surface finish.

(Nakajima, paragraph spanning cols. 1-2) [emphasis added].

Contrary to the Examiner's assertion, it would not have been obvious to modify Nakajima's wood pieces 4 with OSB. This is because OSB has a rough surface, such that the proposed modification would detract from Nakajima's stated object of having a smooth surface. According to MPEP 2143.01, if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). The combination of Nakajima and Sean proposed by the Examiner would leave the Nakajima plywood with a rough surface (due to the OSB), thereby making the Nakajima system inoperable for its intended use (i.e., having a smooth surface). Therefore, one of ordinary skill in the art would not have been prompted to modify Nakajima by replacing the boards 4 with OSB.

Moreover, Applicants submit that the rejection is improper because the Examiner has failed to identify a reason that would have prompted one of ordinary skill in the art to replace Nakajima's divided wood pieces with oriented strand board (OSB). While the *KSR* court rejected a rigid application of the teaching, suggestion, or motivation ("TSM") test in an obviousness inquiry, the Supreme Court acknowledged the importance of identifying "a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does" in an obviousness determination. *Takeda Chemical Industries, Ltd. v. Alphapharm Pty., Ltd.*, 492 F.3d 1350, 1356-1357 (Fed. Cir. 2007) (quoting *KSR International Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1731 (2007)). In this case, instead of identifying any such reason, the Examiner merely asserts that Sean teaches the structural equivalence of wood and OSB boards, and concludes that the modification of Nakajima would have been obvious. Applicants submit that a generic teaching of equivalence does not constitute a reason that would have prompted one of ordinary skill in the art to replace Nakajima's divided

wood pieces with oriented strand board (OSB). Therefore, the rejection is improper and should be withdrawn.

In any event, Applicants note that Sean does not teach the equivalence of wood and OSB boards in plywood, such as the plywood disclosed by Nakajima. The whole point of the Nakajima invention is plywood, as set forth in the title, the first independent claim, and at numerous instances throughout the specification. Moreover, Nakajima teaches that:

The main object of the present invention is to effectively utilize logs of small diameters, short lengths or low grades which have scarcely been used and to provide plywood which is adjustable in specific gravity and strength.

(Nakajima, col. 1, lines 22-27) [emphasis added].

Applicants submit that it simply would not make sense to utilize OSB in plywood, much less in plywood that is aimed at utilizing low grade materials. This is because OSB is expensive to manufacture compared to the wood pieces disclosed by Nakajima. Therefore, one having ordinary skill in the art would not have been prompted to modify Nakajima by using OSB instead of the divided wood pieces, as suggested by the Examiner.

Additionally, the Examiner acknowledges that neither Nakajima nor Sean discloses a *nail plate*. For example, Nakajima shows multiple boards bonded together to form layers, but does not disclose bonding with a nail plate. Sean does not disclose a plurality of boards bonded together in layers, and consequently does not disclose any structure for bonding layers together. The Examiner asserts, though, that Rionda and EP 941 each disclose the use of nail plates to join together two layers of material by placing the nail plates between respective layers. The Examiner concludes that it would have been obvious to use nail plates between the layers of Nakajima boards to provide a strong joint that is stable and resistant to shear forces. Applicants disagree.

As discussed above, Nakajima discloses plywood. As is understood by one having ordinary skill in the art, plywood comprises pieces of wood that are glued together. For example, the online Merriam-Webster Online Dictionary defines plywood as:

a structural material consisting of sheets of wood glued or cemented together with the grains of adjacent layers arranged at right angles or at a wide angle.²

Moreover, the online American Heritage Dictionary defines plywood as:

A structural material made of layers of wood glued together, usually with the grains of adjoining layers at right angles to each other.³

Furthermore, the Ellis patent applied by the Examiner in this very rejection defines plywood as:

Plywood and panelling is manufactured by bonding together layers (plies) of thin sheets of wood (veneer). The layers are glued together with the grain direction of adjacent layers at right angles. The veneer is usually rotary-peeled from logs, but may also be sliced or sawn. After trimming, drying and grading, the veneers go to glue spreaders, where adhesive is applied and the plywood panel is laid up. The plywood is generally hot-pressed in large multiopening heated hydraulic presses. The application of both heat and pressure cures the glue.⁴

According to the above-noted definitions, the ordinary meaning of the term “plywood” includes layers of wood glued together. On the other hand, the Examiner’s proposed modification would use a nail plate instead of glue to bond Nakajima’s boards 4 together. However, if a nail plate were used to bond Nakajima’s boards 4, then the resulting structure would not be plywood. As noted above, according to MPEP 2143.01, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the

² <http://www.merriam-webster.com/dictionary/plywood>

³ <http://www.bartleby.com/61/73/P0387300.html>

⁴ U.S. Pat. No. 4,661,398, lines 46-56 of col. 1 [emphasis added].

claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). The combination of Nakajima and Rionda or EP 941 proposed by the Examiner would change the Nakajima system from plywood to something other than plywood, thus changing the intended use and/or principle of operation of the Nakajima invention. Therefore, one having ordinary skill in the art would not have been prompted to modify Nakajima by using a nail plate to bond boards 4 together.

Moreover, Applicants submit that one of ordinary skill in the art would not have been motivated to use a nail plate with Nakajima because using a nail plate would add weight to the Nakajima board. This would be contrary to the purpose of Nakajima. Specifically, Nakajima discloses that the plywood of his invention is “convenient to transport and is usable for applications where lightweightness is desirable” (col. 1, lines 40-45) [emphasis added] and as a “base material for decorative uses” (col. 1, lines 40-45) [emphasis added].

Rionda, on the other hand, teaches the use of nail plates in a structural member, particularly for “[t]he joinder of structural load bearing wooden members” (col. 1, lines 5-10) [emphasis added]. Using a nail plate in Nakajima, as proposed by the Examiner, would add weight to the Nakajima board, thereby detracting from Nakajima’s object of being lightweight. Moreover, using a nail plate designed for structural members with a lightweight, decorative (i.e., not structural) plywood would not have produced results that were predictable to one of ordinary skill in the art. Therefore, one having ordinary skill in the art would not have been prompted to modify Nakajima by using a nail plate to bond Nakajima’s plywood boards together.

Furthermore, Nakajima does not disclose or suggest *at least one plastic mat disposed between two layers lying one on top of the other*, as additionally recited in claim 1. The Examiner correctly notes, though, that Nakajima discloses the use of an interposed material, e.g., a non-woven fabric, between at least two of the layers (see, e.g., lines 1-18 of col. 3, and lines

39-43 of col. 4 of Nakajima). The Examiner asserts that Ellis also discloses placement of fabric between layers of plywood and that the fabric may be a plastic fabric. The Examiner concludes that it would have been obvious to use a plastic fabric as the fabric layer in Nakajima to improve the structural properties of the product.

Applicants acknowledge that Ellis teaches that a coating-saturated fabric may be utilized between layers of plywood, and that the fabric may be polyester or fiberglass. Particularly, Ellis discloses a coating for use in plywood for improving the fire-resistance of the plywood. Ellis describes that the coating is designed to be used either as a substitute for currently used bonding glues (i.e., glues used for bonding plies of the plywood) or to be compatible with such glues (col. 6, lines 10-15). Ellis explicitly states that the coating serves “as an excellent adhesive between the wood plies” (col. 6, lines 39-40) and that the “coating alone can be used as the adhesive or bonding agent, since it bonds tenaciously to the wood fibers” (col. 7, lines 3-5). Ellis teaches that the coating can be applied in the form of an impregnated fabric (col. 7, lines 23-24).

However, Applicants submit that it would not have been obvious to modify the Nakajima board to use Ellis’s coating-impregnated fabric and a nail plate, as suggested by the Examiner. More specifically, since Ellis teaches that the coating is such an effective bonding agent for plywood (i.e., the coating of Ellis is designed specifically to be a substitute for bonding glue or to be compatible with glue), it would not make sense to modify Nakajima’s board to include both Ellis’s coating-impregnated fabric and a nail plate, as proposed by the Examiner in the rejection of claim 1. This is because Ellis’s coating-impregnated fabric alone would serve to bond the plies of Nakajima’s board together, and there would be no reason to add the additional nail plate.

Moreover, the Examiner’s proposed use of both Ellis’s coating-impregnated fabric and a nail plate would unnecessarily add weight to the Nakajima board, which would detract from Nakajima’s stated objective of being lightweight (discussed *supra*). Thus, the combined

teachings of the Nakajima and Ellis actually teach away from the Examiner's proposed multiple modifications of the Nakajima board.

Applicants submit that for the above-discussed reasons, no proper combination of the applied art discloses or suggests the combination of features recited in claim 1. Claims 2, 4, 7-10, 19, 22, and 23 depend from independent claim 1, and are allowable at least for the same reasons as claim 1. Moreover, as discussed below, the applied art does not disclose or suggest many of the features recited in the dependent claims.

Claim 2

Claim 2 depends from claim 1 and additionally recites *the layers of a plurality of boards are additionally connected to one another by mechanical connecting means*. For example, as described at lines 5-6 of page 7 of Applicants' specification, in addition to the nail plate, the individual layers can also be nailed, screwed, or clamped together. The Examiner takes official notice that it is well known to use mechanical means such as screws, nails, etc., to attach together layers of material. However, this statement of official notice fails to address the recited combination of a nail plate and mechanical connecting means. Applicants submit that the applied art does not disclose or suggest *at least one nail plate disposed between respectively two layers lying one on top of the other and the layers of a plurality of boards are additionally connected to one another by mechanical connecting means*.

For example, Nakajima does not disclose either a nail plate or other mechanical connecting means, much less a combination of both a nail plate and mechanical connecting means. Rionda, and EP 941, relied on the by the Examiner to teach a nail plate between layers, only disclose using a nail plate, and do not disclose an additional mechanical connecting means. In fact, Rionda explicitly teaches away from using additional mechanical connecting means.

More specifically, Rionda states:

The joinder of structural load bearing wooden members has been significantly advanced by the advent of structural wooden joints which are connected solely by means of metal plates having nail-like teeth struck therefrom and embedded into the wooden members, such as illustrated in Jureit U.S. Pat. No. 2,877,520. Plates of this type wherein the teeth serve as the only means holding the plates onto the wooden members and the wooden members in adjoining relation have proved eminently successful particularly in the building industry. Various arrangements and configurations of teeth in the plates have been proposed and constructed in the past for specific purposes and to solve particular problems associated with utilization of connector plates of this type.

(Rionda, col. 1, lines 10-24) [emphasis added].

Thus, not only do the references fail to disclose or suggest an additional mechanical connecting means, Rionda actually teaches away from the recited combination. The Examiner is reminded that a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984), MPEP 2141.02. In this case, looking at Rionda in its entirety, it would clearly teach away from using an additional mechanical connecting means. Accordingly, Applicants submit that no *proper* combination of the applied art discloses or suggests the combination of features recited in claim 2.

In any event, as the Examiner is taking official notice, Applicants request that the Examiner provide a reference to show such features. MPEP §2144.03 provides the following guidance regarding when it is appropriate to take Official Notice without documentary evidence to support the Examiner's conclusion:

Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known. As noted by the court in *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970), the notice of facts beyond the record which may be taken by the examiner must be "capable of such instant and unquestionable demonstration as to defy dispute" (citing *In re Knapp Monarch Co.*, 296 F.2d 230, 132 USPQ 6 (CCPA 1961)).

...

It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art. *In re Ahlert*, 424 F.2d at 1091, 165 USPQ at 420-21.

Applicants traverse the Examiner's assertion of Official Notice with regard to claim 2. More specifically, for the reasons discussed above, Applicants submit that the combination of features recited in claim 2 (i.e., at least one nail plate disposed between respectively two layers lying one on top of the other and the layers of a plurality of boards are additionally connected to one another by mechanical connecting means) are not capable of instant and unquestionable demonstration as being well-known. Accordingly, Applicants request the Examiner withdraw the rejection or provide documentary evidence to factually support the rejection.

Claim 8

Claim 8 depends indirectly from claim 2 and additionally recites *the plurality of OSBs have a thickness of 100 mm to 250 mm, the plurality of OSBs have a length of 4 m to 6 m, and the interspaces are about 20 mm wide*. Applicants submit that the base reference (i.e., Nakajima) fails to disclose the following features that are present in claim 8: (i) oriented strand board; (ii) a nail plate; (iii) a plastic mat; (iv) mechanical connecting means; (v) the plurality of OSBs have a thickness of 100 mm to 250 mm; (vi) the plurality of OSBs have a length of 4 m to 6 m (vii) and, the interspaces are about 20 mm wide.

To arrive at the combination of features recited in claim 8, Nakajima would have to be modified in at least seven different ways. Applicants submit that such extensive modification of Nakajima would not have been obvious at least for the reasons discussed *supra*. Applicants further submit that a seven-way modification of Nakajima in view of Sean, Ellis, Rionda, EP

941, design choice, and official notice would necessarily be an example of blueprinting based on an improper use of hindsight reconstruction.

As the Examiner is surely aware, the Court of Appeals for the Federal Circuit has repeatedly cautioned against employing hindsight by using a patent applicant's disclosure as a blueprint to reconstruct the claimed invention from the isolated teachings of the prior art. See, e.g., *Grain Processing Corp. v. American Maize-Pros. Co.*, 840 F.2d 902, 907, 5 USPQ2d 1788, 1792 (Fed. Cir. 1988). Moreover, it is established law that one "cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." *Ecolochem, Inc. v. Southern Calif. Edison Co.*, 227 F.3d 1361 (Fed. Cir. 2000), (citing *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1780, 1783 (Fed. Cir. 1988)).

Moreover, Applicants submit that it would not have been obvious to modify the divided wood pieces of Nakajima to be of the dimensions recited in claim 8 because Nakajima expressly states that the object of his invention is to use wood pieces that are prepared from logs of small diameter and short length (col. 1, lines 23-25; col. 1, lines 34-35; col. 2, lines 29-31). Nakajima teaches specific dimensions for the wood pieces, which dimensions do not fall within the recited ranges (i.e., the plurality of OSBs have a thickness of 100 mm to 250 mm, the plurality of OSBs have a length of 4 m to 6 m, and the interspaces are about 20 mm wide, as recited in claim 8). Moreover, making Nakajima's divided wood pieces larger would add weight to the plywood, which would detract from Nakajima's stated objective of lightness (discussed *supra*). For all of these reasons, Applicants submit that it would not have been obvious to modify Nakajima's wood pieces to be of the size recited in claim 8.

Accordingly, Applicants respectfully request that the §103(a) rejection over claims 1, 2, 4, 7-10, 19, 22, and 23 be withdrawn.

CONCLUSION

In view of the foregoing remarks, Applicants submit that all of the claims are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue. The Examiner is invited to contact the undersigned at the telephone number listed below, if needed. Applicants hereby make a written conditional petition for extension of time, if required. Please charge any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 19-0089.

Respectfully submitted,
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